

## Editorial

Time flies and 2020 is nearing its end. We have come through a difficult year due to the pandemic crisis, but we can never stop making an effort, working hard and being hopeful as we look to the future. I think the same can be said for our journal; with great support and cooperation from Berlin, London and Beijing, we have continued to work in spite of quarantine restrictions, remote or home working and difficulties with international freight forwarding.

In this issue, I recommend the review article contributed by Pan et al of Prof Xuliang Deng's team from Peking University School of Stomatology, on developments in antibacterial therapy with specific attention paid to physical stimuli approaches. As we know, traditional antibacterial modalities utilised in dental applications can be roughly divided into three categories: antibiotics, antimicrobial agents and physical stimuli. Antibiotics, for example, are used to prevent infection before and after tooth extraction in diabetic patients, iodine glycerin is used to kill bacteria and reduce inflammation after scaling, while positively-charged sprays are used to treat *Candida* infections in the oral mucosa. However, the rampant abuse of antibiotics has resulted in the emergence of innumerable drug-resistant strains of bacteria. Moreover, antibacterial agents have many flaws, such as poor heat resistance, easy degradation, cytotoxicity and complex mechanisms of action, all of which have reduced the efficacy of antibacterial therapy. As such, physical stimulation is a simpler and cheaper alternative to antibacterial treatment. Unlike antibacterial agents, the physical stimuli-based approach often has high efficacy, good stability and negligible toxic side-effects. Most importantly, it does not produce drug resistance. In this review, the application of different physical stimuli, including electricity, magnetism, light, ultrasound and thermal stimulation, in antibacterial research is critically examined to provide new ideas and directions for further development of antibacterial therapy in clinical dentistry. The background, research status and prospects of five different types of physical stimulation method are critically examined. Indeed, physical stimuli have been

widely used in food sterilisation and domestic water treatment, and their application in the dental field has also developed to some degree; this is demonstrated, for example, in the modification of implants with a topological morphology that is non-conductive to bacterial adhesion. Many clinical applications remain to be developed. Considering the inaccessibility of the biofilm growth environment and the tendency for increased tolerance to antibiotics, physical stimulation may be a promising alternative to antibiotic treatment in the future because it can not only inhibit biofilm formation but also remove formed biofilms, as well as act on multiple targets and destroy bacterial structure to maintain a healthy oral environment. This review comprehensively summarises the classification, research status and application prospects of physical stimuli-based antibacterial approaches, providing cues for further research into antibacterial modalities and outlining the theoretical basis for clinical antimicrobial infection therapy.

I also recommend the article contributed by Dr Fernando Almeida Parra et al of Prof Julio Acero Sanz's excellent team from the Department of Oral and Maxillofacial Surgery at Ramón y Cajal University Hospital of the University of Alcalá, Madrid. The authors examine the transmandibular approach in head and neck oncological surgery, having retrospectively reviewed a series of 42 patients operated on between 2008 and 2018 as part of a robust project. The article could provide useful guidance for the selection of a surgical approach for tumours in the posterior oral cavity, oropharynx and parapharyngeal area, and makes a significant contribution to our knowledge on the use of the transmandibular approach in head and neck oncological surgery. More detailed information about the surgical procedures can be found in the article.

Finally, I wish you all a very happy new year!

*Prof Guang-Yan Yu*  
*Editor-in-chief*  
*President of the Chinese Stomatological Association*